Restricted

NAVY DEPARTMENT

BUMED NEWS LETTER

a digest of timely information

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The July number of the Naval Medical Bulletin, edited by Commander R. C. Ransdell, (MC) U.S.N.R. and Lieutenant Commander S. A. Zieman, (MC) U.S.N.R. will soon be in the mails. The Bulletin is filled with much vital information on naval medical war subjects. The following abstracts are taken from a few of the many important articles.

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Rheumatic Fever in the Navy: Report of a survey of cases from the United States Naval Hospitals at Oakland, Treasure Island, Mare Island, and San Diego in December 1942. Eighty cases were reviewed. The current attacks occurred most frequently in the winter and spring months following an upper respiratory infection associated with physical exertion, fatigue, and often mental strain. The report is written (1) to emphasize a fact well known to the Navy Medical Corps, especially to the epidemiologists, that rheumatic fever is a real problem; (2) to make the point that rheumatic fever has appeared among our marines and sailors in the tropics; (3) to point out that in 54 per cent of the cases there was a history of one or more attacks of childhood rheumatic fever. The author concludes that, just as in tuberculosis, if the recruit gives a history of previous rheumatic fever he should not be accepted in the armed forces of the country. Once he develops rheumatic fever while in service he should not be retained. (Master, Nav. Med. Bull., July '43.)

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A Simple Face Mask: The author describes a mask which may be used to control droplet dissemination at its source. The essential parts are an ordinary paper napkin, two small spring paper clips and two rubber bands. The advantages claimed for this type of mask are its ease of preparation and application, its cheapness and availability, its effectiveness. He suggests that these masks be used on all patients on whom chest examinations are being done, regardless of the diagnosis. (Ulmar, Nav. Med. Bull., July '43.)

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Penetration of Head by Line-Carrying Spike: Report of a case in which a line-throwing spike entered a man's head at the point where the ala of the nose joins the left cheek and emerged at the hairline of the left neck 2½ inches posterior to the angle of the left mandible.

The wounds were dried as much as possible and the edges thoroughly excised, great care being taken that no dirty tissue was left. Following excision and after two small arteries were tied off, sulfanilamide powder was copiously applied to all wounds, letting it go as deeply into each wound as possible without using pressure. All wounds were left wide open for drainage, without suturing.

The patient's condition was good after operation. Tetanus prophylaxis was given. Sulfanilamide was started orally, the initial dose being 4 gm., followed every 4 hours by 1 gm. day and night. A warm saline mouthwash was given several times daily. Liquid diet was necessary for the first few days as it was difficult for him to open his mouth or to swallow.

For several days afterward all wounds drained moderately and with no signs of infection. Seven days after the injury, increasing cyanosis was noted with gradual temperature rise. The blood count was not unusual and the urine was negative. The sulfanilamide was discontinued and these symptoms cleared. Fluids were forced, his diet increased and vitamin therapy instituted.

About four months later he was able to open his mouth fully. He was returned to duty with no apparent disability remaining. The author attributes the fact that no infection occurred to the immediacy with which the patient was seen, the promptness in excision of nonviable tissue and in removal of foreign matter and the efficacy of the sulfonamides. (Hays, Nav. Med. Bull., July '43.)

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Cotton Sutures: The use of cotton suture material aboard ship, under wartime conditions, has been found to be both practical and desirable. While catgut may not be available under certain circumstances, cotton thread can practically always be obtained from small stores or the sailmaker in at least two sizes.

The author reported on 35 cases in which cotton sutures had been used. The majority of these were hernia repairs and appendectomies. Observation over a period of six months or longer revealed no evidence of weakening or recurrence in any of the hernia cases. Minimum scar formation was observed in all cases.

In addition to the cases reported cotton has been used for ligature and closure in a large number of wounds and lacerations. Practically no local reaction resulted. There were no stiff ends to catch when gauze dressings were removed. Knots remained tight and were easily tied.

Since there is a certain amount of shrinkage when cotton suture material is autoclaved, it is suggested that the cotton be wound on a piece of gauze to prevent rupture of some of the fibers with resultant weakening of the suture. (Kimbrough, Nav. Med. Bull., July '43.)

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Evacuation of Wounded by Air From the Battle of Guadalcanal: During a period of five months patients were flown to hospitals five hours (700 miles) away. Only four deaths occurred during flight. No contraindications to altitudes below 3,000 feet were found. Flight at these altitudes was usually possible, although weather and mountains occasionally necessitated higher altitudes. Low altitude flying is, of course, slower. Shock or potential shock contraindicates any type of transportation. Flying men with chest injuries above 3,000 feet is not without danger. In one case flight at 4,000 feet may have been a contributing cause of intrathoracic hemorrhage and death. Evacuation of gastro-intestinal perforations should be postponed until post-operative tympanites have disappeared, as again a higher altitude was a contributing cause of death in at least one patient with generalized peritonitis. He developed symptoms of shock at 7,000 feet. The evacuation of extensive burns should also be postponed until after 24 hours of anti-shock therapy. Shock sometimes developed in the plane where proper treatment was at best difficult. Patients under sulfa drugs and patients with severe chronic anemia withstood altitudes of 10,000 feet quite well. Morphine, oxygen, and plasma were the only therapeutic agents found to be indispensable during flight. Cabin heat is desirable.

The authors conclude that in determining the safety with which a patient can be transported by air, his general condition is more important than the particular nature of his disease or injury.

The following recommendations are made: (1) A medical officer should be in charge of selection and loading of patients; (2) patients should be fed and urged to urinate and defecate prior to being placed on the plane; (3) in trips lasting over four hours all patients show weariness, irritability, and discomfort, and it is felt that trips lasting over five hours are undesirable; (4) abdominal cases should not be evacuated until several days after operation. (Flaherty, et al, Nav. Med. Bull., July '43.)

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Battle Casualties Aboard a Light Cruiser Over a Period of Six Months: The importance of early treatment as an immediate lifesaving measure and as an influence on later hospital morbidity rates is pointed out. In the treatment of burns, emphasis was placed on early supportive treatment, rest, and the delay of local treatment until the patient had completely recovered from primary shock. "Triple dye" was used locally but the author believes that microcrystalline sulfathiazole and pressure dressings have an advantage over any of the eschar-forming drugs. Compound fractures were satisfactorily treated on board by open reduction, careful but limited debridement, without

internal fixation. Sulfanilamide was used locally with immobilization in plaster cast. Gunshot wounds were treated by thorough irrigation with warm tap water, conservative or no debridement, sulfathiazole locally without closure and, when indicated, with immobilization in plaster. (Creigh, Nav. Med. Bull., July '43.)

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A Program for the Emergency Treatment of Extensive Burns:- A plan for the emergency treatment of burn casualties in a major catastrophe. Actual treatment, under such conditions, must be largely by workmen instructed in first aid, and by hospital corpsmen, directed by a relatively small number of medical officers. Major burns should be immediately differentiated from minor ones. Therapy is largely determined by the patient's condition and the length of time he must remain at the first-aid station or emergency room. The advisability of evacuating the patient as soon as transfer to a hospital is practicable is emphasized throughout. The author concurs in the opinion that "effective treatment (of shock) depends upon total support of the patient, not merely the application of a single measure of therapy." The requirements of ideal emergency local therapy in the circumstances specified, are both positive and negative. (Berkow, Nav. Med. Bull., July '43.)

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Sulfonamiduria, a Simple Test for its Detection: A drop of urine containing a sulfa drug is placed on a piece of wood pulp paper and moistened with hydrochloric acid. The test is as simple as that. Because of the lignin supplied by the wood pulp paper the author terms it the "lignin test" and finds it the simplest and quickest method for determining whether or not a patient has received sulfonamide therapy. If as little as 0.01 per cent sulfonamide is present, a yellow color appears, which deepens to an orange with higher concentrations. Nothing apt to occur in the urine gives a false positive test.

The test has been applied routinely to every urine specimen examined at the Norfolk Naval Hospital since February 15, 1943. The first 3,000 specimens of urine tested revealed positive chemical tests for sulfonamides in about one-eighth of the urines, of which about one-fifth showed sulfonamide crystals, usually acetylated sulfathiazole, microscopically. More than half of the specimens received from the pneumonia service gave positive tests, with more than a third of them showing crystals in the urine, and the negative tests were mainly from new admissions or patients already convalescent, etc. Only half a dozen specimens, of the 3,000 tested, were reported to have sulfa crystals microscopically without a positive chemical test. The author does not intend to recommend the discontinuance of blood sulfanilamide determinations in controlling the dosage, but merely to emphasize the convenience and utility of this simple qualitative test for sulfonamides in the urine. (Bogen, Nav. Med. Bull., July '43.)

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It is desired to call to the attention of medical officers the following articles on meningococcus infections appearing in the July issue of the U.S. Naval Medical Bulletin.

"100 Consecutive Cases of Cerebrospinal Fever at Camp Endicott." By Michael Tarante, Lt., (MC), USNR.

"A Summary of 50 Cases of Cerebrospinal Fever, Meningococcic." By William Newcomer, Lt., (MC), USNR, and Eugene M. Frame, Lt., (j.g.), USN.

"Treatment of Cerebrospinal Fever, Meningococcic." By Thomas D. Van Orden, Lt. Comdr., (MC), USNR, and Charles H. Armentrout, Lt. (MC), USNR.

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False Positive Kahns Following Immunization Procedures: In connection with the discussion of false positive serological reactions for syphilis, in the last issue of the Bumed News Letter, reference should be made to the report of Thomas and Garrity in the Naval Medical Bulletin of April 1941. These authors found, in 10,000 tests performed on blood drawn 12 days after cowpox vaccination, 14 positive reactions which were later proven to be false positives. The authors felt that primary and accelerated cowpox reactions were in these cases responsible for the temporary positivity of the serum.

Lynch, et al in the J.A.M.A. of August 23, 1941, report 16% false positive tests in 263 primary cowpox vaccination reactions. They felt that a greater number of false positive tests occur between the second and sixth post-vaccinial week than when the blood specimen is taken under two weeks.

There is ample evidence that serological tests for syphilis may occasionally be influenced by infectious processes and by artificial immunizations. Blood for serological tests should not be taken in a febrile or immediately post-febrile period nor within a few weeks following immunization procedures. Positive reactions, especially those obtained under such circumstances, should be checked and rechecked. Such false positives will usually soon revert to negative.

When, because of negative history and physical findings, serological study, beyond that available locally, is indicated, serum may be sent to the Naval Medical School. Directions concerning amounts of serum, sterility, as well as shipping instructions, previously given in Vol. 1, No. 9, should be carefully followed.

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The Inhibitory Effect of Procaine on the Bacteriostatic Activity of Sulfathiazole: The bacteriostatic action of sulfathiazole can be inhibited "in vitro" by a number of agents. Para-amino-benzoic acid and its derivatives are among the most potent inhibitors.

Procaine and other local anesthetic agents in common use are derived from para-amino-benzoic acid. The chemical formula of procaine is b.diethyl-amino-ethyl-para-amino-benzoate.

Experimental work has shown conclusively that procaine will inhibit the bacteriostatic activity of sulfathiazole in wounds inoculated at the time of trauma with a suspension of Staphylococcus aureus.

As a result of these studies the authors are of the opinion that the use of procaine for local anesthesia in the treatment of compound fractures and traumatic wounds is contraindicated when sulfathiazole is to be applied topically. (Casten, et al, Surg. Gynec. & Obst., June '43.)

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The Viability of Transfused Human Red Cells as Determined by Radioactive Iron: Gibson, Evans and Aub have demonstrated, by utilizing red cells containing or tagged with radioactive iron, that when week-old red cells are transfused their life is much shorter than fresh red cells. They found that 10% of such cells were removed from the circulation within the first two hours. After three days only about 50% were still in circulation. Using fresh red cells, 90% were found still to be in circulation at the end of seven days.

Another interesting observation in this investigation was that the radioactive iron liberated by the week-old red cells destroyed in the first three days was promptly returned to circulation incorporated in newly hemoglobinized red cells which had arisen in the patient's own hemopoietic system. (OEMcmr 131.)

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Planter Warts: Karp and Frank state that most plantar warts have a depth of from 6 to 10 mm. and recommend thorough destruction by means of a cutting current and employment of a 2 mm. loop as the active electrode. This is thrust into the center of the wart to a depth of 6 to 10 mm. and rotated through 180°. A local anesthetic is employed. This technic appears quite practical and should be efficacious. However, various other methods are also efficacious and depending upon the apparatus available and experience of the operator, may be preferable. The main thing is to destroy the wart down to its base. It is further to be remembered that Roentgen therapy is another valuable method and should nearly always be employed in case of recurrence. (Arch. Dermat. & Syph., Feb. '42.)

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Officers of the Medical Corps, Women's Reserve: Seven have been appointed. Their uniform will be that of the WAVES, but with Medical Corps devices.

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The Medical Management of Intestinal Obstruction with Special Reference to the Use of the Miller Abbott Tube: The author's use of the term medical attention of intestinal obstruction means non-operative treatment with the use of intubation. He has summarized the pathologic physiology of intestinal obstruction and the article is particularly well written from the medical point of view.

He points out that the group of patients with intermittent intestinal obstruction following multiple operations almost always have a combination of slight angulation of the bowel with local edema and spasm. Decompression with the Miller Abbott tube usually relieves the obstruction. They are always subject to recurrence, but less so than if another laporotomy is performed.

McIver is quoted as dividing mechanical obstruction as follows, and these percentages should prove helpful in arriving at a diagnosis:

Etiology of Mechanical Obstruction: (1) External hernias - 44% of the cases; (2) adhesions - 31% (13% late post-operative, 11% early post-operative, 7% non-operative); (3) neoplasma - 9%; (4) intussuception - 5%; (5) volvulus - 4%; (6) mesenteric thrombosis - 3%; (7) gall stones - 2%; (8) internal hernias - 1%; (9) diverticulums - 1%.

Treatment: (1) Intubation - (Miller Abbott tube). The technic is given in detail emphasizing the importance of inflating the stomach with 200-300 cc. of air, to iron out the obstruction to the tube, a reflex contraction. The value of fluoroscopic control; the use of local anesthetic lubricant to the nose; the use of ephedrine nose drops to relieve nasal edema, and the use of hot saline gargles and throat lozenges are discussed.

(2) Hypoproteinemia is a first concern in treatment. It accounts for a good deal of the edema of the bowel at the site of obstruction. Partial obstruction may readily be converted into a complete obstruction on the basis of low blood protein edema. Plasma or whole blood should therefore be given these patients early and as often as necessary.

(3) Hypochloremia - The amount of saline given must be carefully checked after the first 24 to 48 hours or after the first three liters, the usual normal saline fluid requirement. Calculate the visible fluid loss; estimate the invisible fluid loss and determine the blood chlorides.

(4) Relief of Distention - By intubation and suction, fluid loss can be measured, obstructive lesion located and patient fed, via tube, a 1500-calorie, vitamin enriched, low residue diet.

The writer concludes: "In any case of intestinal obstruction the decision is not whether it should be treated medically or surgically, but whether it should be treated medically or surgically at that particular time. This is a decision that must be reached at each visit to the patient." (Folley, New England J. Med., May 13, '43.)

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It is unfortunate that in the above discussion of intestinal obstruction situations requiring immediate surgery were omitted, i.e., (1) patients with evidence of strangulation; (2) early mechanical obstruction (24 hours) with obvious external cause (hernia); (3) left-sided colonic lesions (not readily decompressible by tube).

Once the hypochloremia is corrected, an excess of salt may lead to retention of fluid and actually increase the obstruction. The hematocrit and the specific gravity of the blood should be watched for indications of hemoconcentration or dilution. (J.S.B.)

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Relief of Hyperventilation Tetany: In a recent talk, Major A.L. Chute, R.C.A.M.C., a member of the British Middle East mobile medical research committee, pointed out that hyperventilation tetany was not uncommonly seen in the Middle East wounded. This tended to accentuate muscle spasm and pain following a fracture. It could be relieved by voluntarily holding one's breath or rebreathing into a paper bag.

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Pulmonary Irritations in Burn Cases: Analysis of data by the National Research Council Subcommittee on Burns indicates that pulmonary damage complicating burns is seldom produced unless a pulmonary irritant other than the flame or hot air itself is inhaled. It has been shown experimentally that the inhalation of flame or hot air results in changes in the larynx and trachea but not in the lungs.

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Use of Equipment of Plasma Package for Whole Blood Transfusion: Upon completion of reconstitution of the dried plasma, the distilled water bottle remains sterile and pyrogen-free and after addition of sodium citrate solution can then be used as a receptacle of whole blood for transfusions. The intravenous set in the plasma package plus an adequate filter may be used for administering the blood. Detailed technics for collecting the blood by the "closed-vacuum," "closed-non-vacuum" or "open" system have been worked out. These will be published shortly in the Naval Medical Bulletin. (L.R.N.)

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Sacrococcygeal Cysts: Weeks and Young report 200 cases in an Army hospital in which primary closure was found to be definitely superior to the open method of treatment, both in the results obtained and in the markedly decreased number of hospital days. Two main changes in post-operative care of open wounds were heliotherapy and skin grafting. (Amer. J. Surg., May '43.)

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Gas Pains While Flying: With increasing altitude the atmospheric pressure decreases and gases in closed spaces within the body tend to expand. Such gases are easily eliminated from the stomach or from the rectum but are often trapped in other parts of the intestinal tract where they can cause distention and severe pain.

It is believed that much of the gas in the stomach and bowel represents swallowed air. This is promoted by at least three factors: (1) Anxiety; (2) drinking much fluid; (3) ingestion of much fat. Bacterial decomposition of food occurs mainly in the colon and produces hydrogen and methane which diffuse relatively slowly into the blood. The production of these gases is encouraged by eating foods which are incompletely digested in the small intestine. Other sources of gas in the gastro-intestinal tract are carbonated beverages, the interaction of gastric hydrochloric acid with bicarbonates in the intestine, and diffusion into the intestine of gases dissolved in the blood.

Based on these considerations the following recommendations are made:

1. Within two hours of flights to altitudes above 10,000 feet and during such flights the drinking of fluids should be greatly restricted.
2. Before and during such flights no carbonated beverages should be taken.
3. All food eaten should be carefully masticated.
4. The following foods should be avoided: (1) Fried foods; (2) fat meats or other foods mixed with much fat excepting butter and cream; (3) fresh bread, rolls or cake; (4) beans, peas, lentils and nuts; (5) cabbage, turnips or other vegetables containing much fiber; (6) raw vegetables or fruits excepting strained juices or ripe bananas; (7) dried fruits with coarse skins such as prunes.
5. The following foods are recommended: (1) Lean meat and fish; (2) asparagus, carrots, string beans, squash or potatoes, all thoroughly cooked without fat; (3) strained fruit juices, ripe bananas, stewed or canned peaches, pears or apples; (4) dried or toasted bread, noodles, macaroni or spaghetti prepared with butter or cheese; (5) butter, cream, cheese or milk; (6) junket, custard, rice pudding, cake (not too fresh); (7) coffee in limited amount, with or without cream and sugar.

These dietary recommendations apply chiefly to foods taken four hours or less before flights to high altitude. There is no satisfactory evidence that similar restrictions imposed at other times will affect the tendency to gas accumulation during flight. (R.B.B.)

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Synthesis of Penicillin Possible: The chemistry of penicillin is becoming known. Should the formula be satisfactorily worked out the next step would naturally be synthesis. Although this is by no means assured it now appears quite possible. Reduction in cost and great increase of the now limited supply would probably then result.

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Public Health Foreign Report:

Plague

British East Africa, Uganda Protectorate: Plague has been reported in Uganda Protectorate, British East Africa, as follows: Week ended March 13, 1943, 3 cases, 3 deaths; week ended March 20, 1943, 3 cases, 3 deaths.

Indochina, Cochinchina: For the period January 11-20, 1943, 3 cases of plague with 3 deaths were reported in Cochinchina, Indochina.

Morocco: During the month of February 1943, 19 cases of plague were reported in Morocco.

Smallpox

Indochina: For the period March 21-31, 1943, 432 cases of smallpox were reported in Indochina.

Typhus Fever

Algeria: For the period March 21-31, 1943, 532 cases of typhus fever were reported in Algeria, including 59 cases in Algiers, 21 cases in Bone, and 18 cases in Mostaganem.

Guatemala: During the Month of March 1943, 146 cases of typhus fever with 19 deaths were reported in Guatemala.

Hungary: During the week ended April 10, 1943, 30 cases of typhus fever were reported in Hungary.

Iraq: Typhus fever (endemic and epidemic) has been reported in Iraq as follows: Weeks ended March 13, 1943, 44 cases, 2 deaths; March 20, 49 cases, 2 deaths; March 27, 60 cases, 3 deaths; April 3, 92 cases, 5 deaths. In Basra Liwa, a total of 125 cases of typhus fever, with 11 deaths from the same cause, was reported for the period January 24 to April 17, inclusive, all but 1 case of which was of the endemic type.

Irish Free State, Leitrim County: During the week ended April 3, 1943, 9 cases of typhus fever were reported in Leitrim County, Irish Free State. During the preceding week 7 cases of typhus fever were reported in the same county. During the week ended April 10, 1943, 3 cases of typhus fever were reported.

Rumania: For the period April 8-15, 1943, 360 cases of typhus fever were reported in Rumania.

Public Health Foreign Report: (cont.)

Spain: For the week ended March 6, 1943, 11 cases of typhus fever were reported in Spain.

Spanish Morocco, Melilla: For the week ended February 6, 1943, 1 case of typhus fever was reported in Melilla, Spanish Morocco. (Pub. Health Rep., May 7 & 14, '43.)

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Rubber Tissue Dressings for Large Wounds: Reports indicate there is need for a light, simple dressing for large, raw wounds. Ordinary gauze dressings adhere to the wound and result in poor drainage, fever and pain. Perforated cellophane, although it has not always been available, has been suggested as ideal for covering large, raw surfaces.

Wax paper and other improvisations have been used. A recent suggestion is that of James Gardner of Cleveland. He has used a thin Latex rubber film with a strip of cloth tape incorporated in the edge for the purpose of anchoring adhesive strips to the Latex. (J.S.B.)

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The Finding of Negri Bodies in Cases of Rabies: Johnson reports that Negri bodies cannot always be found in the brains of men and animals dying of rabies. In 1937 the author studied all brain specimens received at the Georgia State Health Department, by first making microscopic examination and second, by making inoculations into white mice of portions of every brain found negative for Negri bodies. Of 771 specimens found positive for rabies upon inoculation, 10.5% were negative for Negri bodies upon microscopic examination. (Illinois M. J., May '42.)

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Survival of Tubercle Bacilli in Books: Smith reports bacilli in sputum placed on the leaves of books remain alive, if the books are closed with the pages still wet and stored in a dark unheated cupboard, for 2 weeks to 3½ months. The author estimates that in most cases contaminated books ought to be rendered safe and non-infectious by a quarantine period of one month. (Amer. Rev. T.B., Jan. 23, '43.)

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Visible Distances Set: The actual curvature of the earth for the first mile is about nine inches, and increases thereafter in feet at a rate proportionate to the square of the distance expressed in miles. If approximate curvature of the earth for any distance is wanted, multiply the square of the distance in miles by .67. The answer will tell you how much the earth

has curved under at that point in feet. For example, the surface of the earth 10 miles from where you are standing is 67 feet lower than you are.

On the surface of the sea, at eye level, the range of vision is only 2.9 miles. On land, since the earth itself varies in altitude, the range of vision is always at least the same 2.9 miles plus the distance reflected by altitude of the individual in relation to the object's altitude.

The following "vision range" formula tells how far the average person can see from various heights.

The range of vision is equal to the square root of the altitude multiplied by 1.225 miles. For example, at 1,000 feet, you can see for 38.8 miles. From 10,000 feet, you can see for 122.5 miles. And for those who are somewhat rusty on their mathematics, the Pan-American Clipper Captains compiled a table:

From	1,000	feet -	you	can	see -	39 miles
	2,000	"	"	"	"	55 "
	3,000	"	"	"	"	67 "
	4,000	"	"	"	"	77 "
	5,000	"	"	"	"	87 "
	10,000	"	"	"	"	123 "
	15,000	"	"	"	"	150 "
	20,000	"	"	"	"	173 "
	25,000	"	"	"	"	194 "

(Science News Letter, June 5, '43.)

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"Navigation in Emergencies": A booklet with this title has been prepared by Doctor Bart J. Bok, Harvard Astronomical Laboratory, for the Engineer Amphibian Command. A second version of the pamphlet is being prepared for individuals not schooled in navigation. A limited number of mimeographed copies of the Emergency pamphlet may be obtained, gratis, by writing to the Harvard Observatory, or to Colonel W.W. DeWitt, Director of Schools, Headquarters, Engineer Amphibian Command, Camp Edwards, Massachusetts. Waterproof copies may be obtained from the latter address.

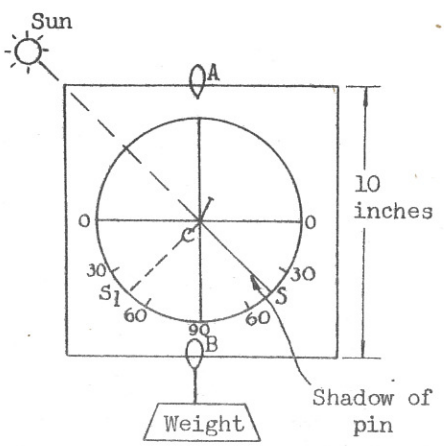
Under wartime conditions there may well arise emergencies in which the lives of many men depend on the skill of the navigator in charge. He must be able to determine his position, at least roughly, and to chart a course for a friendly shore. Delicate navigational instruments may have been damaged beyond repair; charts, almanacs and navigational tables may not be at hand. The task of the navigator is difficult under those circumstances, but it should be simplified if he has with him the brief guide and tables presented here.

The text has been prepared especially to suit the needs of those officers who at some time in the past have taken a brief course in coastwise and

celestial navigation, but who may be a bit rusty on details. An officer without any previous knowledge of the art of navigation should, however, still be able to profit by this pamphlet if, during an emergency, he finds himself in charge as a navigator. He may wish to keep his Dead Reckoning by plotting rather than by the use of the Traverse table, but with the aid of the sections on sextant altitudes, noonsights and latitudes from Polaris, he should be able to find his latitude to within 10'.

It might be well to warn users of the pamphlet that it is not complete as it stands. In order to be fully prepared for an emergency, it would be well to have along also a good small-scale chart of the theater of operations, a pilot chart of the area for the season, a small star chart, and if at all possible, some notes on the meteorology of the region.

The "shadow marker," shown in the accompanying figure, is an example of the type of material included. A graduated circle with a diameter of not less than six inches (nine or ten inches preferred) is mounted on a flat, stiff piece of cardboard or wood. It is suspended between the thumb and first finger by a small loop of string or wire at A. At the point B, a weight is attached to steady the marker. Care should be taken that (1) BCA is a straight line; (2) the line BCA divides the cardboard base equally; (3) BCA points toward the zenith when suspended freely; (4) the "circle reading" directly above B is marked 90°. All this can be checked most readily with the aid of a plumb line.



At the point C, a sturdy pin not more than half an inch long is mounted perpendicular to the plane of the cardboard. The marker is turned until the shadow of the pin is clearly marked. The position of S is then read on the graduated circle. Since small errors in adjustment may occur, it is well to turn the marker around and take a second reading with the shadow falling near S_1; the mean of the two readings should be very nearly free from errors. The marker is for use with sun. A table is included showing the sun's declination and the equation of time for ten-day intervals.

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Medical and Social Factors in Crime: Most criminals are handicapped persons. At one end of the scale are the cases whose difficulties are entirely due to mental disease; at the other end are pure social problems with all possible gradations in between.

It seems obvious that the attempts of society to handle criminals, as a class, by a general rule of treatment applied to all, has not worked satisfactorily in the past.

This leads to the hypothesis that the best way to handle the problem of crime is through individual study. In certain cases this calls for elaborate psychiatric investigation; in others, for equally elaborate sociological study. In the main, all offenders should have preliminary social case work carried out, in order that the needs of the individual can be brought into focus and assigned to the proper persons for treatment and care.

Studies of prisoners at the present moment have not resulted in startling cures, but have furnished the basis upon which better social engineering can be done. The knowledge of the personality of criminals today is far in advance of the procedures by which they are handled in any society.

It is to be hoped, as knowledge accumulates, that in the course of time general laws can be discovered which will enable preventive measures to be carried out on a large scale. To illustrate, in medicine the discovery of the infectious nature of diarrhea in children has led to the control of milk supplies in our great cities and thus has practically controlled this disease which once carried off a very large percentage of children during their first year. Unfortunately, at present very few such criminal laws are known and we are still obliged to handle each case empirically, often almost on an instinctive level. (Stearns, Ann. Int. Med., Apr. '43.)

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Use of Sea Water for Washing Films and Papers: The use of sea water for washing photographs and films is recommended on board ship where the water supply is not unlimited. Some negatives treated in this way are still in perfect condition after 30 years. The removal of hypo is greatly accelerated during washing in sea water as compared with fresh water. As a result, it is recommended that films and prints be washed in sea water for about one half of the usually recommended times. Where possible, a final wash of about five minutes in fresh water prevents fading of the image caused by residual salts in the presence of hypo and absorption of moisture by hygroscopic sea salts. (Eastman Kodak Research Laboratories.)

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Penicillin, Its Discovery and Isolation: The discovery of the fact that molds elaborate substances that are capable of inhibiting the growth of certain bacteria has led in recent years to strenuous efforts to isolate and identify these substances from the mold cultures.

In 1929 A. Fleming reported the presence of a bacteriostatic substance which he called penicillin in the culture of a strain of Penicillium notatum. This substance definitely inhibited the growth of many gram-positive micro-organisms.

For 11 years after Fleming made his discovery very little was done with making penicillin available for clinical use. In 1940 the Oxford investigators (Chain, Florey and others) succeeded in preparing a highly concentrated and active preparation of penicillin suitable for clinical use.

In 1941 Abraham, et al reported further on the preparation of penicillin and its clinical use.

It was not until 1942 that the substance was extracted, obtained in crystalline form and found to be an unstable acid with the probable formula of $C_{14}H_{19}NO_6$ or $C_{14}H_{17}NO_5 - H_2O$.

Although the substance has been obtained in crystalline form, routine preparations are not usually so purified due to the difficulty of extraction.

Action of Penicillin: In vitro studies have shown that penicillin causes an actual decrease in the number of organisms, the bactericidal action taking place, however, only if multiplication is going on. Against a wide variety of gram-positive organisms, both aerobic and anaerobic, penicillin is found to have an activity at least 1,000 times greater than that of the sulfonamides. In contrast to the sulfonamides, penicillin's bactericidal action is at times apparently enhanced rather than reduced by blood and serum. The substance is apparently not destroyed or absorbed from solution by the micro-organisms, and on the other hand, lysis of the micro-organisms does not apparently occur. The substance does not behave like any other chemotherapeutic agent now in use. It is not hemolytic; it does not behave as a detergent; its action is not inhibited by the presence of para-amino-benzoic acid or by the products of tissue destruction.

Penicillin is soluble in body fluids and is non-toxic. In the treatment of generalized infections, considerable difficulty is encountered because penicillin is excreted rapidly in the urine, and a significant amount is "destroyed" in the body. After parenteral administration, penicillin often diffuses poorly so that high concentrations frequently cannot be obtained at the site of the infection. However, once the concentration is sufficient, an antibacterial effect is produced. The antibacterial effect is not dependent on phagocytosis and, as far as can be determined, penicillin is not inhibited by substances in the body.

A drawback to the use of penicillin has been that in its purified form it has been found to be inactive against all gram-negative organisms tested, and certain of the gram-negative organisms possess a substance which inhibits the action of the penicillin.

Preparation of Penicillin: The preparation of penicillin is a somewhat lengthy process. The yield from cultures is small; about 1 gram of active concentrated material can be derived from 100 liters of culture medium. It is cumbersome because these large volumes of media must be kept in shallow dishes while the fungus is growing, hence requiring tremendous amounts of incubation space. Adequate buffering is necessary because acids produced during incubation tend to destroy penicillin. Incubation time is 10 - 11 days at 24°C., although recent experimental work in England indicates that this can be reduced to 5 - 6 days.

Penicillin is a nitrogenous compound, probably a protein. It is unstable, presumably because of free labile carboxyl groups. Apparently it is possible to obviate this disadvantage by esterification. The aliphatic esters, methyl-ethyl-, and n-butyl-, are apparently stable and inactive in vitro, but prove to be active in vivo. Whether esterification by use of the corresponding diazo compounds will be practical on a large scale is not apparent at this time.

Clinical Use: Additional information on penicillin, based largely on observations and reports derived from recent investigation conducted under the auspices of the National Research Council by Dr. Chester S. Keefer, Chairman of the Subcommittee on Chemotherapeutic Agents, National Research Council, and by Dr. Champ Lyons, of the Subcommittee on Surgical Infections, National Research Council, who has conducted special pilot investigations in cooperation with the U.S. Army Medical Corps, will be given in a forthcoming Bureau of Medicine and Surgery directive on this subject. The letter will probably cover the supply, packaging, preservation, potency, indications for clinical use, methods of administration, as fully as is possible at the present time.

Penicillin, sodium salt, supplied in ampoules, to be diluted for clinical use should be kept, as continuously as possible, at refrigerator temperature, approximately plus 4°C. Handled in this manner it loses about 10 per cent potency in three months. At room temperature the change is more rapid. In solution, its potency drops sharply after 24 hours even though refrigerated.

Although the Navy's expenditures on penicillin may be large, the amounts available are not sufficient, nor would it perhaps be wise until further service experience has been obtained with penicillin to consider its use outside certain base hospitals. Penicillin can be used to greatest advantage in fulminating infections with the gram-positive cocci, the Neisseriae, and in chronic sulfa-resistant infections. It is not effective in subacute bacterial endocarditis or in gram-negative bacillary infections. The evidence of its effectiveness in gas-bacillus infections still rests largely upon animal experimental work. Penicillin will be administered principally by intravenous or intramuscular injection. It may also be used locally on wounds and burns when incorporated in a water-soluble ointment base.

It should be remembered that the clinical employment of penicillin is relatively new. Its marvelous potentialities, although quite clear in many phases, may well be modified by further experience. Sodium salt is the form in which penicillin is now being supplied. It appears probable that the calcium or magnesium salt may be quite as effective, less deliquescent and therefore more stable and more easily handled. Further information will be made available as facts are established.

The Leaven of Psychosomatic Medicine: The psychosomatic aspect of medicine has in recent years been heralded as something new and apart from psychiatry or the other medical specialties, yet its basic idea is very ancient. In the evolution of medicine there has been a tendency to divide the patient into organs and systems and to regard individually each organ and system, its symptoms, pathology and therapy, apart from the whole organism. However, qualified specialists have always treated patients who have had functional complaints referable to particular systems with psychosomatic insight, even if such treatment were not dignified by the name "psychosomatic." In order to diagnose successfully and treat the patient's ills, there should be a parallel consciousness of the patient's emotional organization and his organic state. (Strecker, Ann. Int. Med., May '43.)

* * * * * *

Blood Plasma Demonstration Package: Several instances have been reported of failure or delay in administration of dried plasma which have resulted from failure to follow explicitly the directions lithographed on the plasma can, or from inexperience in handling the set. The most common error encountered is releasing the vacuum in the plasma bottle by first inserting the double-ended needle through its stopper instead of the correct procedure of first thrusting the needle through the water bottle stopper. In the first several thousand packages manufactured the cellophane covering the needles became vulcanized and was difficult to remove. In these packages it is advisable to cut the cellophane free by scissors or knife. This defect was promptly corrected.

A limited number of demonstration packages are now available on letter request from the Naval Medical Supply Depots, Brooklyn and San Francisco for the instruction of the personnel of Naval Medical Activities in the proper use and reconstitution of the Standard Army-Navy Package of Dried Plasma. These demonstration packages are in all respects identical with the standard package except for the substitution of dextrose for the dried plasma. Either the demonstration package or a used standard package may be reused for demonstration purposes by removing the stoppers from both the plasma and water bottles, emptying and washing and drying the plasma bottle and adding to it a small amount of soluble material such as sugar or salt. The stopper is reinserted in the plasma bottle and a vacuum created in the bottle by running an intravenous needle through the stopper and connecting it with a hand or mechanical vacuum pump for several minutes, then withdrawing the needle. The water bottle is then filled three-quarters full with water and restoppered. The two bottles may then be used as a demonstration set.

The attention of all medical officers is called to Form Letter No. 22 dated January 6, 1942, which together with a reproduction of the instructions on the plasma can, is reprinted in this issue.

Reference is made to Sharp and Dohme packaging of dried plasma. Since it is believed that all of these units distributed have been used, and that all dried plasma now in the hands of medical officers is packaged in the standard Army and Navy package, instructions for this packaging only are reprinted below.

* * * * * *

STANDARD ARMY AND NAVY PACKAGE OF NORMAL HUMAN PLASMA, DRIED

INSTRUCTIONS FOR USE

1. Open metal cans with attached keys.
2. Remove plasma and water bottles. Cleanse stoppers with alcohol.
3. Remove cellophane from double-ended needle and remove glass tube from one end of needle.
4. With water bottle in upright position insert uncovered end of double-ended needle through stopper into the water bottle.
5. Remove cellophane and glass tube covering airway needle and insert needle of airway assembly through rubber stopper into the water bottle.
6. Elevate free end of airway assembly to prevent water from wetting cotton filter in airway. CAUTION: If cotton in airway filter becomes wet—remove it.
7. Remove glass tube from other end of double-ended needle. Invert water bottle and insert needle through stopper into plasma bottle. (See diagram A.)
8. Allow water to be drawn into plasma bottle. CAUTION: If vacuum in plasma bottle is lost, apply pressure in water bottle by forcing air into airway tube. If this method fails, remove stoppers and pour water into plasma bottle. Replace stopper on plasma bottle and continue immediately.
9. After water is added, double-ended needle is removed from plasma bottle.
10. Shake plasma bottle until plasma is completely dissolved.
11. Apply metal clamp to the 4-inch piece of rubber tubing on the intravenous set and close it.
12. Remove coverings from short needle attached to intravenous set and insert through stopper of plasma bottle.
13. Withdraw needle of airway assembly from water bottle and insert through stopper into plasma bottle.
14. Invert plasma bottle and suspend it for administration. (See diagram B.)
15. Fix glass end of the airway assembly with the suspension tape above the inverted plasma bottle.
16. Remove cellophane from observation tube and intravenous needle.
17. Attach intravenous needle to tube and remove glass tube from needle.
18. Loosen metal clamp and allow plasma to fill rubber tubing. When tube is filled, and free of air bubbles, tighten metal clamp.
19. Insert needle in vein and regulate flow with screw clamp. If patient is to receive additional plasma, restore second bottle as outlined. Close regulating clamp as soon as first bottle is empty, but before air enters tube. Pull out needles from first bottle and insert in second bottle. Elevate end of airway and fix it in place with the suspension tape.

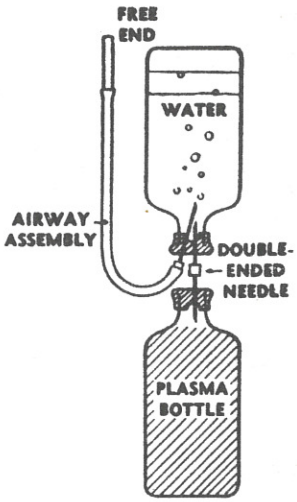

DIAGRAM A
RESTORATION OF THE DRIED PLASMA

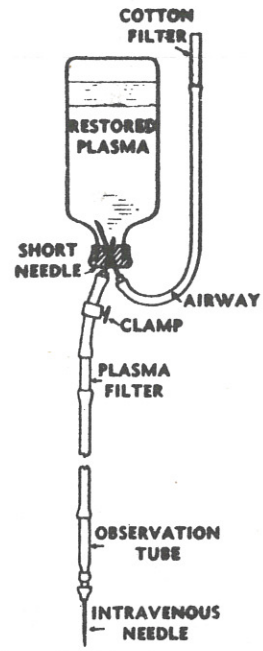

DIAGRAM B

BUREAU OF MEDICINE AND SURGERY
NAVY DEPARTMENT
WASHINGTON, D.C.

Y-ec

P3-1/A16-1(012-41)

January 6, 1942.

FORM LETTER NO. 22.

From: The Chief of the Bureau of Medicine and Surgery.
To: Fleet, Force, Squadron, Division and Detachment Commanders.
Commanding Officers of Ships in Commission.
Prospective Commanding Officers of Vessels building or fitting out.
Commandants of Naval Districts.
Commandants and Commanding Officers of Shore Stations.
Commanding Officers, Marine Corps.

Subject: Use of plasma and the regeneration of dried human plasma.

References: (a) U.S. Naval Medical Bulletin, October 1941, p. 506.
(b) U.S. Naval Medical Bulletin, January 1942, p. 1.

Enclosures: (A) Directions accompanying plasma prepared by Sharp & Dohme.
(B) Instructions accompanying the standard Army and Navy package of normal human plasma, dried.

1. The Medical Department of the Navy is provided with a limited quantity of dried plasma which must be regenerated strictly in accordance with directions in Enclosure (A). Enclosure (B) is lithographed on the standard Army and Navy container.

2. Briefly the indications for the use of plasma are: (1) emergency treatment of shock arising from burns, (2) hemorrhage, and (3) multiple injuries. It is contraindicated and shall not be used in secondary anemia and blood dyscrasias.

3. Commanding officers shall take necessary steps to assure (1) that "shock" resuscitation teams are organized, (2) that ALL members and alternate members of these teams are skilled in intravenous technic and familiar with the regeneration of the plasma, and (3) that this letter and enclosures are brought to the attention of every medical officer.

ROSS T. McINTIRE.

BUREAU OF MEDICINE AND SURGERY

F34-5(052-37)
P-4:KC
May 21, 1943

From: The Chief of the Bureau of Medicine and Surgery.
To: All Ships and Stations.

Subject: Prevention and Decontamination of Mustard Gas and Lewisite Casualties by Use of S-461 Ointment and BAL Ointment, Directions for.

1. In order to avoid confusion in the use of terms describing the treatment of gassed persons, the National Research Council has defined "prevention" as any form of protective clothing, equipment, or application used prior to exposure to chemical agents, and "decontamination" as the physical removal or chemical neutralization of the contaminant.

2. Decision governing the time and place for wearing gas masks, protective clothing, and accessory equipment is based on military considerations. It is assumed that personnel will make use of such protection as circumstances will permit.

3. Each person who may be subjected to a vesicant gas attack should carry one tube of S-461 ointment and one of BAL ointment with his gas mask for use in prevention or decontamination procedures according to the following directions:

MUSTARD GAS

I. Prevention.
(1) Persons required to enter areas known to be contaminated with mustard gas, or if a vesicant gas attack is anticipated, should apply S-461 ointment liberally to unprotected parts of the body (not in the eyes, axillae, or in the genital region).
(2) Rub the ointment in well and leave it on the skin.
(3) S-461 ointment also protects against lewisite, but to a lesser degree than against mustard gas.

II. Skin.
(1) Decontamination First Aid:
(a) Use the aborbent paper wrapper from around the tube of S-461 ointment, or gauze pads or any absorbent material to blot off mustard gas droplets or liquid. Blot it by dabbing, not by rubbing or scrubbing motions as these will spread the contaminant. Use fresh absorbents for each application.
(b) Absorbent materials employed in the removal of liquid mustard should be thrown overboard, buried or destroyed, not simply discarded, as they are contaminated and are a potential source of mustard burns.
(c) Blotting of the mustard gas should be performed as rapidly as possible, not over 1 minute being used for this procedure.
(d) Then apply S-461 ointment liberally to the skin (not in the eyes), rub in well and leave it on.

(e) Alternative First-Aid Procedures: If no S-461 ointment is available, mustard gas may be removed by applications of dichloramine-T in triacetin, bleach paste (equal parts bleach powder and water), or solvents: Carbon tetrachloride, kerosene, gasoline, or alcohol using the blotting technic and being careful not to spread the mustard over uncontaminated skin. Follow these alternative applications by bathing with soapy water.

(2) Late Treatment:

(a) If prevention was not employed and decontamination was delayed, redness and itching will appear followed by formation of blisters. It is too late to benefit from the protective ointment when the skin is red and itching, in fact the use of the protective ointment, of dichloramine-T or of bleach paste at this stage may aggravate the injury to the skin.

(b) Bathe the red area with soapy water, dry, and apply an anesthetic ointment or boric-acid ointment and a sterile dressing.

(c) Blisters should be drained by sterile technic if large or painful and the subsequent treatment of the mustard gas burn is the same as for thermal burns of comparable severity.

(d) It is considered inadvisable to use tannic acid therapy for mustard-gas burns.

III. Eyes.

(1) Decontamination First Aid:

A. Following Exposure to Mustard Vapor:

1. Immediate lavage is not indicated and should not be attempted for the following reasons:

(a) Only a small percentage of vapor burns produce any serious damage to the eyes.

(b) Experimental evidence indicates that immediate lavage of the eyes is without therapeutic value in known vapor burns.

(c) Any attempt to irrigate the eyes of a gassed person in the presence of vapor necessitates removal of the gas mask with the resultant likelihood of further damage to the eyes and lungs.

B. Direct Liquid or Droplet Contaminations:

1. Copious lavage with any available nonirritating fluid, including urine, is recommended if such can be accomplished within the first 3 minutes after the splash injury. The following points must be emphasized:

(a) Lavage, to be effective, must be copious. Small volumes of fluid tend to spread, not to remove the damaging agent.

(b) Late irrigation is useless in the protection of the eyes, but up to 15 minutes after injury may be efficacious in removal of liquid mustard from the lids and surrounding skin.

(c) The difference in efficacy between different irrigating fluids is small, the difference between immediate and delayed irrigation is large; therefore, that fluid should be used which is most immediately available. A 2-percent solution of bicarbonate of soda will be available at the decontamination station. Water is among the most satisfactory fluids.

C. Specific Therapy: No recommendation can be made at present for any specific or decontaminant therapy in the eyes.

(2) Later Treatment:

A. Routine Lavage:

1. Late lavage as a routine is contra-indicated, but occasional irrigation is permissible when required to remove foreign material, discharge, and

mucus. Experimental evidence indicates that routine lavage after injury is not only without any therapeutic value, but interferes with healing if repeated frequently.

B. Use of Atropine Sulfate:

1. Instill 1-percent solution of atropine sulfate in eyes at decontamination station or dressing station in all cases of either vapor or direct liquid injuries of the eyes with mustard.

2. Further use of atropine (or other cycloplegics) should be under medical direction if there should develop a late iritis or corneal ulceration.

C. Local Anesthetics:

1. Local anesthetics may be used in both vapor and splash injuries of the eyes with mustard for the purpose of controlling local pain.

2. The anesthetics recommended in the order of preference are:

(a) 0.5 percent pontocaine.
(b) 1 percent butyn.
(c) 2 percent cocaine hydrochloride (no higher).

3. Such local anesthetics should be used as little as possible and, at most, no more frequently than four times a day, and no longer than necessary. Frequent use of local anesthetics, especially cocaine, tends to loosen the corneal epithelium and delay the healing of eroded areas.

D. Shielding the Eyes:

1. Eyes injured either by vapor or liquid mustard should not be bandaged or covered in any manner at the dressing station or decontamination station. On the contrary, should there be sufficient edema of the lids present to prevent the man from opening his eyes, the attendant should gently open the lids for a moment to assure the patient he is not blind.

2. Bandaging at a later date should be done only for specific medical cause, such as corneal ulcers, when the splinting action of the lids is required. If bandaged, the eyes should be cleansed and dressed once a day.

3. Dark glasses should not be worn unless photophobia due to corneal involvement or iritis be present.

E. Use of Ointment Containing Sulfa Drug:

1. A 5 percent sulfadiazine ointment employing a suitable ophthalmic ointment base is recommended for use beginning not later than 24 hours after injury. In severe burns this should be used as long as there is any discharge or evidence of corneal involvement or danger of break-down.

LEWISITE

I. Prevention.

(1) Persons required to enter areas specifically known to be contaminated with lewisite should apply BAL ointment sparingly to unprotected parts of the body (not in the eyes, as BAL is in itself irritating to the mucous membranes of the eye and may cause symptoms for several hours).

(2) Rub the ointment in gently and leave it on while the person remains in the contaminated area.

(3) Wash off the ointment with soapy water when protection is no longer required.

(4) Some persons react to BAL ointment with urticarial wheals, therefore it should be applied only for protection from known lewisite contamination or for decontamination purposes.

(5) In case of an expected vesicant gas attack apply S-461 ointment liberally to unprotected parts of the body (not in the eyes). Rub the ointment in well and leave it on the skin.

II. Skin.

(1) Decontamination First Aid:

(a) Use the cellulose wadding wrapper from around the tube of BAL ointment, or gauze pads or any absorbent material, to blot off lewisite droplets or liquid. Blot it by dabbing, not by rubbing or scrubbing motions as these will spread the contaminant.

(b) Absorbent materials used in the removal of liquid lewisite are contaminated and should be disposed of as described under "Mustard Gas."

(c) Blotting of liquid lewisite should be performed as rapidly as possible, not over 1 minute being used for this procedure.

(d) Then apply BAL ointment to the skin, rub in well and leave it on. Apply BAL ointment as soon as possible after known exposure to lewisite.

(e) Alternative First-Aid Procedures:

1. If no BAL ointment is available, skin contaminated with lewisite may be decontaminated by applying gauze or cotton pads dipped in an 8 percent solution of hydrogen peroxide, using the blotting technic. Follow the 8 percent solution with a wet dressing of 3 percent or 4 percent hydrogen peroxide.

2. If there is no BAL ointment or hydrogen peroxide available, use S-461 ointment, dichloramine-T in triacetin or bleach paste as described under "Mustard Gas."

3. Of lesser efficacy is the repeated application of a 10 percent solution of sodium hydroxide in 30 percent glycerine alternating with alcohol sponges.

4. Least effective is cleansing the skin with solvents as described under "Mustard Gas."

(2) Late Treatment:

(a) If prevention was not employed and decontamination was delayed, painful blisters will develop. These should be drained by sterile technic if so situated as to be incapacitating.

(b) BAL ointment should be applied to the burned area, as the BAL will not only neutralize any residual lewisite but the absorbed BAL will combat the systemic toxicity of lewisite.

(c) Areas severely burned by lewisite splashes may be excised if no decontamination treatment is available. Excision, to be of value in saving life, should be performed within 6 hours of the time of contamination.

(d) The subsequent treatment of lewisite burns is the same as for thermal burns of comparable severity plus the treatment of systemic arsenic poisoning.

(e) It is considered inadvisable to use tannic acid therapy for lewisite burns.

III. Eyes.

(1) Decontamination First Aid:

(a) BAL is an effective specific therapeutic agent for lewisite and all other arsenical burns of the eye. It should be used as soon as possible after injury. A short period of disability and complete cure can be anticipated if BAL is used within 2 minutes after injury. The period of disability will be increased but complete cure may still result if BAL is used within the first

5 minutes. The period of disability and the final damage increases markedly with further delay. If administered 30 minutes after injury, most injured eyes will eventually be sightless. No beneficial effect of any kind will be observed if treatment is not given within the first hour.

(b) BAL ointment should be used immediately by the casualty. The lower lid should be drawn down and the ointment squeezed from the tube and applied to the conjunctival sac. An excess of ointment should then be smeared over the lids, and the lids thoroughly rubbed.

(c) The ointment should be applied again to the injured eye 1 hour after exposure. Further repetition is contra-indicated.

(d) Since delay in treatment makes the use of BAL worthless and would result in many ocular catastrophes, the individual person must carry BAL ointment in his kit and be instructed in its use.

(e) BAL has no deleterious effect in sulfur mustard or nitrogen mustard injuries of the eye. Its use is therefore indicated in contamination with mixtures of mustards and lewisite.

(2) Late Treatment.

(a) In cases where early treatment with BAL was not given, the late treatment is similar to the late treatment recommended for mustard injuries of the eye. This includes:

1. Lavage only to remove foreign materials.
2. Use of atropine sulfate or other cycloplegics.
3. Limited use of local anesthetics.
4. Shielding or bandaging of the eyes only for photophobia or to insure splinting action of the lids when needed for late complications.
5. Use of 5 percent sulfadiazine ointment beginning not later than 24 hours after injury.

4. Subject ointments are listed in the Medical Department Supply Catalog under stock numbers:

S1-3375 OINTMENT, protective, S-461, 3-oz. tube, and
S1-3361 OINTMENT, BAL, ½-oz. tube.

These ointments may be requisitioned on form NMS-4.

ROSS T. McINTIRE.

(Reprinted from the Navy Department Semimonthly Bulletin, June 1, '43.)

Bureau of Medicine and Surgery

P3-2/EF13-39(054)
Ca-GJS
April 22, 1943

From: The Chief of the Bureau of Medicine and Surgery.
To: All Ships and Stations.

Subject: Reciprocal Medical and Hospital Care of Members of the Armed Forces of the United States and Canada When Furnished by Available Facilities Under the Jurisdiction of Their Respective Services.

1. Under an agreement entered into between the Bureau of Medicine and Surgery, Navy Department, and the Minister of National Defense, Canadian Government, necessary medical, dental, and hospital care (including out-patient treatment), to the extent that facilities of the respective services are available, will be furnished to members of the armed forces of the two governments who cannot reasonably obtain such care from the facilities provided by their own government.

2. There will be no charge for this service except as follows:

(a) Officer personnel of the United States Navy hospitalized in facilities of the military and air forces of Canada within its continental limits will be charged subsistence at the rate of $1.00 per day, which will be collected from the individual by the hospital concerned. This charge is not made when treatment is furnished by the medical facilities of the Canadian naval forces within the continental limits of Canada, nor when furnished by any of the Canadian Government facilities outside the continental limits. No charge will be made for subsistence of members of Canadian armed forces who are patients in United States naval hospitals.

(b) Any unusual expense for services or supplies required for treatment of patients that can not be provided by the facilities of the respective hospitals, such as fees for specialists' treatment, civilian nurses, civilian ambulance service, transportation, and special equipment and supplies that have to be purchased in individual cases, will be billed to the services concerned on an actual cost basis. Bills covering such expenses incurred by the Medical Department of the United States Navy for care of patients of the Canadian armed forces will be forwarded to the Bureau of Medicine and Surgery for payment, accompanied with report and explanation of the necessity for same. Bills will be submitted in duplicate, itemized and certified as per instructions in paragraph 3167 of the Manual of the Medical Department. Instructions in paragraph 3508 of the Manual of the Medical Department will be followed by naval hospitals in the same manner as for other supernumerary patients.

3. This reciprocal agreement covers the treatment in available facilities of personnel in a duty status and on liberty or leave. For identification purposes, personnel in a duty status should present written request for the required treatment from their respective commanding officers; personnel

on liberty or leave should present leave papers together with identification tag; and personnel on detached duty, in the absence of a superior officer, should present identification tag with such other papers as they may have to establish identity. In the latter case verification should be made by telephone or dispatch to the individual's commanding officer.

4. Commanding officers, medical officers, or other officers of the U.S. Navy having cognizance of the treatment of any member of the naval forces of the United States in a facility of the Canadian Government will obtain such information as may be necessary for completion of the records and for the submission of required reports, especially Form NMS-U, which should be forwarded to the Bureau of Medicine and Surgery in accordance with instructions in the Manual of the Medical Department.

5. Commanding officers of naval hospitals and officers in charge of other units of the Medical Department of the United States Navy having cognizance of treatment rendered to members of the armed forces of Canada will make appropriate reports to the patient's commanding officer, and also keep a complete case record of each patient for submission to the Canadian Government, if requested.

6. Retention of patients will be only for the periods necessary to effect a return to duty, or other disposition as may be determined by the patient's commanding officer or other responsible authority where it is apparent that treatment and convalescence will probably exceed approximately 30 days. Patients requiring hospitalization temporarily admitted to United States naval dispensaries with limited facilities will be transferred to the nearest naval hospital as soon as practicable after determination by attending medical officer that such action can be taken with reasonable safety.

7. Dental treatment will be limited to emergency work, such as extractions, filling of cavities, and emergency repairs to dentures by available facilities.

8. In the event of death of a member of the Canadian forces while under the care of the Medical Department of the United States Navy, the remains will be prepared and encased under existing contracts and held pending instructions as to disposition. The commanding officer of the ship or station to which the patient is attached shall be notified by dispatch of his death and a similar dispatch shall be sent to the Secretary of the Navy, Washington, D. C. Reports shall be made to the Bureau of Medicine and Surgery as are made by naval hospitals for United States naval forces.

L. SHELDON, JR.
Acting

BUREAU OF MEDICINE AND SURGERY

P3-2/L3(042)
B-DLY

28 May 1943

From: The Chief of the Bureau of Medicine and Surgery.
To: All Ships and Stations.

Subject: Individual First-Aid Packet (Containing Sulfonamides), re: Interpretation of Allowance.

Reference: (a) BuM&S ltr., P3-2/L3(042)B-DLY, of 16 April 1943, re: First-Aid Instruction and Treatment of Casualties; N.D. Bul. of 1 May 1943, R-909.

1. The first sentence of paragraph 4 of reference (a) states: "The Individual First-Aid Packet is furnished each officer and man before going into battle." This general statement has been construed by many commanding and medical officers to apply to all ships and stations, and a number of vessels have requisitioned additional first-aid packets so as to provide one for each man in the ship's complement.

2. To correct this false construction and obviate the erroneous requisitioning of individual first-aid packets in excess of authorized allowances, the first sentence of paragraph 4 of reference (a) is modified to read "The Individual First-Aid Packet is furnished each officer and man of a landing force before going into battle."

3. Although the original outfit for vessels includes individual first-aid packets in a definite ratio to a ship's complement, there is no objection to medical officers submitting requisitions for additional first-aid packets when they deem it necessary.

L. SHELDON, JR.
Acting

OFFICE OF THE SECRETARY

Op-10B-MD
Serial 50710

May 31, 1943

From: The Secretary of the Navy.
To: All Bureaus, Boards, and Offices of the Navy Department.
The Commander in Chief, U. S. Fleet.
The Commandant, U. S. Marine Corps.
The Commandant, U. S. Coast Guard.

Subject: Correspondence.

1. Frequently letters, or copies thereof, are sent to the forces afloat or to outlying bases listing references which are not available to the addressees.

2. In the preparation of correspondence, originators must take care:

(a) To list as references only such material as is necessary to an adequate understanding of the subject matter, and

(b) To make certain that all addressees, and all who receive copies, have been supplied with all references.

3. The listing of references can often be avoided by careful phrasing of the text of letters. Quotations of pertinent parts of former or relevant correspondence may often be included in the text to avoid listing references. If references must be resorted to because neither careful phrasing nor quotations will result in a clear understanding of the subject matter, copies of references must be provided for those who are not in possession of them.

Ralph A. Bard
Acting Secretary of the Navy